ABSTRACT

Methods and devices are provided that are effective to remove an obstruction in a human airway and/or maintain an open airway. The methods and devices are particularly useful for patients suffering from snoring and/or OSA, and/or preventing upper airway obstructions in patients undergoing anesthesia. In one embodiment, the device includes a mouthpiece that is adapted to form a substantially sealed cavity within a human mouth, and a hollow elongate member having a first end that is coupled to the mouthpiece and that is in communication with the substantially sealed cavity, and a second end that is adapted to be coupled to a negative pressure generator. In use, a negative pressure generator can be attached to the hollow elongate member to create a negative pressure in a human mouth in response to an obstructed airway, thereby removing the obstruction. In particular, this device is effective to counteract the collapse of a patient's soft tissues of the upper airway to reopen the airway. The mouthpiece can also be used in combination with a nasal mask. In another embodiment, the oral appliance above also comprises a nasal mask, wherein the nasal mask provides a means of ventilation support, including but

not limited to total mechanical ventilation, positive-end expiratory pressure, or continuous positive airway pressure. In use, such a device can provide complete patient ventilation and maintain an open upper airway.